Final
Site-Specific Unexploded Ordnance Safety Plan Attachment
Site Investigation at Training Area T-31, Parcels 184(7) and 185(7)
Fort McClellan, Calhoun County, Alabama

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List of Acronyms

See Attachment 1, List of Abbreviations and Acronyms, of the Site-Specific Field Sampling Plan Attachment contained in this binder.

1.0 Introduction

This document defines anomaly avoidance procedures for activities to be performed by IT Corporation (IT) in conjunction with the site investigation (SI) activities at the Training Area T-31, Parcels 184(7) and 185(7), at Fort McClellan (FTMC), Calhoun County, Alabama. IT will perform visual surveys and collect surface soil, subsurface soil, groundwater, surface water, and sediment samples for chemical analysis at Training Area T-31, Parcels 184(7) and 185(7). In performing these activities, IT will require unexploded ordnance (UXO) anomaly avoidance services to avoid any potential surface UXO or subsurface anomalies during sampling activities. Intrusive anomaly investigation is not authorized for this SI work.

The Training Area T-31, Parcels 184(7) and 185(7) is located in the northeastern area of the Main Post. Training Area T-31 is located near Range 31 and occupies approximately 3.4 acres (Roy F. Weston, Inc. [Weston], 1990). The site is in a valley surrounded by Cemetery Hill to the west, Reservoir Ridge to the south, and Caffey Hill to the southwest (Parsons Engineering Science, Inc. [Parsons], 1999). This training area partly overlaps with historic firing ranges for 37 millimeter, small arms and machine guns. The site was used from 1957 to 1969 as a Technical Escort Reaction Area and currently has unrestricted access.

Training of Technical Escort personnel was reportedly conducted here using sarin (GB) and distilled mustard (HD) in quantities of 20 to 40 milliliters (Weston, 1990). Also; storage of unspecified chemical warfare materials (CWM) may also have occurred. The decontaminants supertropical bleach (STB) and decontamination solution No. 2 (DS2) may also have been used here. Based on observations of piles of white powder during a visit by U.S. Army Environmental Hygiene Agency in December 1973, it was surmised STB was used as a decontaminant for HD (Parsons, 1999). When the chemical warfare training was deactivated in 1973, training aids used at the site were reported moved to Area T-38 (Parsons, 1999).

Two locations have been reported for Training Area T-31 (Environmental Science Engineering, Inc.[ESE], 1998). Previous reports identify one area located generally west of existing Range 31 at Parcel 184(7) and cite storage of CWM in Igloo 14 or in Igloo 13 (ESE, 1998). The igloos are neither evident on the ground today (Science Applications International Corporation [SAIC], 1993), nor on aerial photos reviewed by the environmental baseline survey team (ESE, 1998). However, igloos are present at the Ammunition Supply Point (ASP), located a short distance to the southeast. Long-time FTMC personnel report that CWM was stored in and dispensed from an

igloo at the ASP, and from nearby Area T-38 (ESE, 1998). Binary CWM components were stored in Building 4416 (also known as Igloo 14, at the ASP) (ESE, 1998).

Retired FTMC personnel also report conducting CWM exercises at a second site close to the previously reported location of Training Area T-31. This site is identified as Parcel 185(7). One report indicated that the training occurred in a previously unidentified area measured approximately 70 feet by 72 feet, but was not be confirmed (ESE, 1998). The EBS team believes that details of the facility layout, location, and operations conducted at Training Area T-31 are in doubt and that activities associated with CWM training may have occurred at three areas. Two of the suspected areas are Parcels 184(7) and 185(7) at the Training Area T-31, as previously identified, and the third is the ASP (ESE, 1998).

Previous investigations report six separate training sites within this area. Several spills were reported at this area (Weston, 1990); however, there is not any information is available on the types or quantities of material spilled. Residual soil contamination is believed to have been treated with STB and DS2 in accordance with Army standard operating procedures.

The SI, conducted from 1991 through 1993, included a magnetometer survey over the site identified in historical records and site photography (SAIC, 1993); however, no surface evidence of the former training area was visible. During the SI that started in 1991, the site was reported to be overgrown, but several pads and concrete structures were evident (SAIC, 1993). The geophysical survey indicated metallic debris scattered within and beyond the site boundaries and this data suggests burial of some items at this location (SAIC, 1993). The SI also included collection of soil, sediment, and surface water samples and field screening for CWM (HD and GB) and laboratory analysis for their breakdown products. Neither field screening for CWM and breakdown products, or laboratory analysis detected any HD, GB, or degradation products in the shallow soil, sediment, or surface water samples.

The elevation at the site ranges from approximately 810 feet to approximately 850 feet above mean sea level. Shallow groundwater direction at the site is probably controlled by topography (northeast to southwest). The depth to bedrock typically ranges from 2 feet to greater than 4 feet. The depth to the water table for this series is usually greater than 20 feet.

2.0 UXO Team Composition

A UXO team will be on site during all sampling activities for anomaly avoidance on a site with known or suspected ordnance and explosives (OE).

a) The UXO team will be composed of two UXO qualified personnel, depending on the tasks to be performed. One UXO team member will be a UXO Technician III and the other will be, as a minimum, a UXO Technician II. Qualifications of these personnel are published in Engineering Pamphlet 1110-1-18 and stated in Section 2.0 of the installation-wide OE management plan (IT, 2000).

b) For the work to be performed in accordance with this work plan, IT will use a Schonstedt GA-72 magnetometer to assist in surface and subsurface sweeps. The Schonstedt GA-230 magnetometer will be the instrument used for downhole anomaly avoidance.

(1) A geophysical proveout test grid will be established and each geophysical instrument will be checked for operational reliability and calibration against this known response prior to field use each day. If calibration checks indicate that the instrument is not functioning within an acceptable range, and field adjustments do not resolve the performance discrepancy, the instrument will be tagged and removed from service.

(2) Preventive maintenance will be performed on a regularly scheduled basis. If an equipment problem is encountered, maintenance will be performed as soon as possible; records of the unscheduled maintenance and corrective action will be collected and retained for future reference.

3.0 Responsibilities

The UXO team member(s) will have the following responsibilities for anomaly avoidance procedures at the sites specified in this work plan.

a) Provide the explosive ordnance recognition, location, and safety functions for IT employees and any subcontractors during sampling activities. Sampling activities include surface and subsurface soil sampling, drilling and sampling of monitoring wells, survey of sample points, and safe access and egress to the site.

b) Conduct UXO safety briefings for all site personnel and visitors.

4.0 Authority

For this investigation, the UXO team will not perform any disposal activities. If the team identifies an OE item, the item will be clearly marked, and operations will be directed to another location for safe execution of the investigation. The UXO team will not destroy the item. The UXO team will report the item to the IT site manager and the FTMC transition force at FTMC for disposition of the item.

5.0 Anomaly Avoidance Procedures for Sampling Activities

When conducting sampling activities in the areas described in this work plan, consideration must be given for possible OE contamination. Since these areas may contain OE contamination, the UXO team must conduct a surface access survey and a subsurface survey of UXO before any type of activities commence, including foot and vehicular traffic.

a) Access Surveys.

(1) The UXO team will conduct access surveys of the footpaths and vehicular lanes approaching and leaving each of the investigation sites. If UXO is found during the access survey, the ordnance will be conspicuously marked and avoided. No personnel will be allowed outside of the surveyed areas.

(2) The UXO team will locate an access route to and from the proposed investigation site that is free of surface and near-surface UXO using an appropriate geophysical detection instrument as required. The access route should be as wide as the minimum number of feet of the widest vehicle.

(3) Geophysical instrumentation should be used to locate potential UXO just below the surface that may be encountered through erosion from rain, continual vehicular traffic, or subsurface sampling and drilling activities. If surface UXO or subsurface UXO-related anomalies are encountered, the access route must be diverted to avoid contact.

(4) The boundary of each access route and investigation site should be marked using white survey flagging and pin flags. Non-UXO qualified personnel will not be allowed outside designated access areas without proper UXO escort. Near-surface anomaly locations will be prominently identified with yellow survey flagging or pin flags. Red flagging will be placed adjacent to any discovered UXO for subsequent visual reference.

(5) At the actual investigation site, the UXO team must also complete an access survey of an area sufficient to support mechanical excavation

equipment maneuverability, parking of support vehicles, and establishment of decontamination stations, as appropriate for site activities. As a minimum, the surveyed area should have a dimension in all directions equal to twice the length of the largest vehicle or piece of equipment to be bought on site. Intrusive activities will not proceed if an anomaly is detected that cannot be positively identified as inert material. In this event, the sampling personnel must select an alternate investigation area or configuration.

b) Surface/Near Surface-Sampling. Surface soil samples are normally collected at depths of 0 to 12 inches below ground surface. The UXO team will visually survey the surface of the selected surface soil sampling sites for any indication of UXO or UXO-related contamination. In addition, the UXO team will utilize a magnetometer over the site before sampling begins. Any anomalies detected will be prominently marked with a yellow survey flag or pin flag for avoidance during sampling activities. If too many anomalies are found within an area of interest, the sampling personnel will select an alternate sampling location for collection of surface/near surface samples.

c) Subsurface Soil Sampling and Monitoring Well Installations. Subsurface soil sampling is considered to be the collection of samples below a nominal depth of approximately 12 inches from a split-spoon, Shelby tube, or bucket auger soil sampler using drilling techniques. Drilling techniques are also used to install groundwater-monitoring wells for investigative sampling.

(1) The UXO team must conduct an access survey to locate an access route to the proposed sampling or drilling location as well as an access survey at the proposed drilling site that is large enough to support drill rig maneuverability, parking of support vehicles, and establishment of decontamination stations. As a minimum, the surveyed area should have a minimum dimension in all directions equal to twice the length of the largest vehicle or piece of equipment to be brought on site. The UXO team will clearly mark the boundaries of the cleared soil sampling or well site. Personnel will not go outside the cleared area. If a preselected area indicates magnetic anomalies, a new sampling/drilling site will be chosen.

(2) The UXO team must complete a subsurface geophysical survey of the proposed drill hole location(s). If the subsurface sampling depth is greater than the geophysical instrumentation detection capabilities below existing ground surface, then the UXO team must incrementally complete the geophysical survey as outlined below.

(a) Underground Utilities. Utility clearance and/or excavation permits are not required for the areas covered by this document. In the event subsurface utilities are suspected in an excavation area, the UXO team must attempt

to verify their location using geophysical instrumentation. Note that only utilities with a ferrous content are detectable with a geophysical instrument. All located utilities should be marked with a series of pin flags to visually delineate their approximate subsurface routing.

(b) Pilot Hole. An incremental geophysical survey of the drill hole location(s) will be initially accomplished using a hand auger to install a pilot hole. An access survey of the immediate vicinity of the pilot hole location will precede its installation. The UXO team using a manual or mechanical portable auger will install the pilot hole. The augured hole will be inspected for anomalies with a geophysical instrument (configured for downhole utilization) at 2-foot increments as the hole is advanced below ground surface. The pilot hole will also be inspected with the geophysical instrument upon reaching the final depth of the hand auger providing a total clearance depth equal to pilot hole depth plus 2 feet. If the proposed site is still free of magnetic anomalies, the drilling equipment may be brought on site and utilized. Hand augering of a hole will not proceed if an anomaly is detected that cannot be positively identified as inert material. If OE is encountered or an anomaly cannot be positively identified as inert material, the sampling personnel must select a new drill hole location.

(c) Monitoring of Drilling by Others. Once a drilling site has been surface cleared and a pilot hole installed as described above, the drilling contractor will be notified that the site is available for subsurface sampling or monitoring well installation. The drilling contractor's actual drill hole must be located within a 2-foot radius of the pilot hole installed by the UXO team. The UXO team will continue to complete a subsurface inspection for anomalies with a geophysical instrument configured for down hole utilization at 2-foot increments as the drilling is advanced from the clearance depth of the pilot hole until achievement of one of the following indicators: the drilling activity is completed; the drilling is extended to depths greater than 30 feet below ground surface; or a qualified geologist determines that virgin soil is found.

(d) Drilling equipment and/or metallic support materials (e.g., drill rig, augers, drill rods, casings, etc.) may create an interference affecting the operation of the geophysical survey instrumentation during the incremental depth inspection process. In such event, the item(s) creating the interference must be relocated outside the interference range of the geophysical instrument during each incremental depth inspection of the drill hole for the presence of anomalies. Drilling of a hole will not proceed if OE is encountered or if an anomaly is detected that cannot be positively identified as inert material. In this event, the sampling personnel must select a new drill hole location.

6.0 UXO/OE Disposition

Since the purpose of UXO support during activities is anomaly avoidance, the UXO team is not tasked to perform UXO/OE disposal. The UXO team will notify the site manager and the FTMC transition force if UXO is encountered that cannot be avoided or if the item presents an imminent hazard requiring immediate action based on the items fuzing or current condition. The UXO/OE item will be marked and recorded and all project personnel will evacuate the area.

7.0 Safety

In addition to the requirements of the site-specific safety and health plan prepared for this site, the UXO team will ensure the following:

a) During the access and subsurface surveys conducted with a geophysical instrument, the UXO team members will not wear safety shoes or other footwear that would cause the instrument to present a false response.

b) The UXO team will not be required to wear protective helmets unless a head threat is present.

8.0 Quality

A UXO quality control specialist is not required for this work. However, quality control instructions and procedures listed in Section 9.0 of the installation-wide OE management plan (IT, 2000) will be followed as appropriate to this task.

9.0 References

Environmental Science and Engineering, Inc. (ESE), 1998, ***Final Environmental Baseline Survey, Fort McClellan, Alabama***, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

IT Corporation (IT), 2000, ***Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama***, March.

Parsons Engineering Science, Inc. (Parsons), 1999, ***Draft-Final Work Plan/Site Safety Submission, Chemical Warfare Material Site EE/CA, Fort McClellan, Alabama***, March.

Roy F. Weston, Inc. (Weston), 1990, ***Final USATHAMA Task Order 11, Enhanced Preliminary Assessment, Fort McClellan, Anniston, Alabama,*** prepared for U.S. Army Toxic and Hazardous Materials Agency, Aberdeen Proving Ground, Maryland, December.

Science Applications International Corporation (SAIC), 1993***, Fort McClellan Site Investigation Report***, August.